

GPS in Europe & ITRF2000

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ITRF2000

Combination of different Techniques

Institution

Technique

ASI, Italy	SLR	
Center for Space Research, Austin	USA	SLR &
DORIS		
CODE, Switzerland		GPS
FESG, Germany	LLR	
GIUB, Germany	VLBI	
GRIM, France	Comb. GRIM	
JPL, USA	GPS	
NIMA, USA		GPS

ITRF2000 - Densifications

Contributions from different
Regions

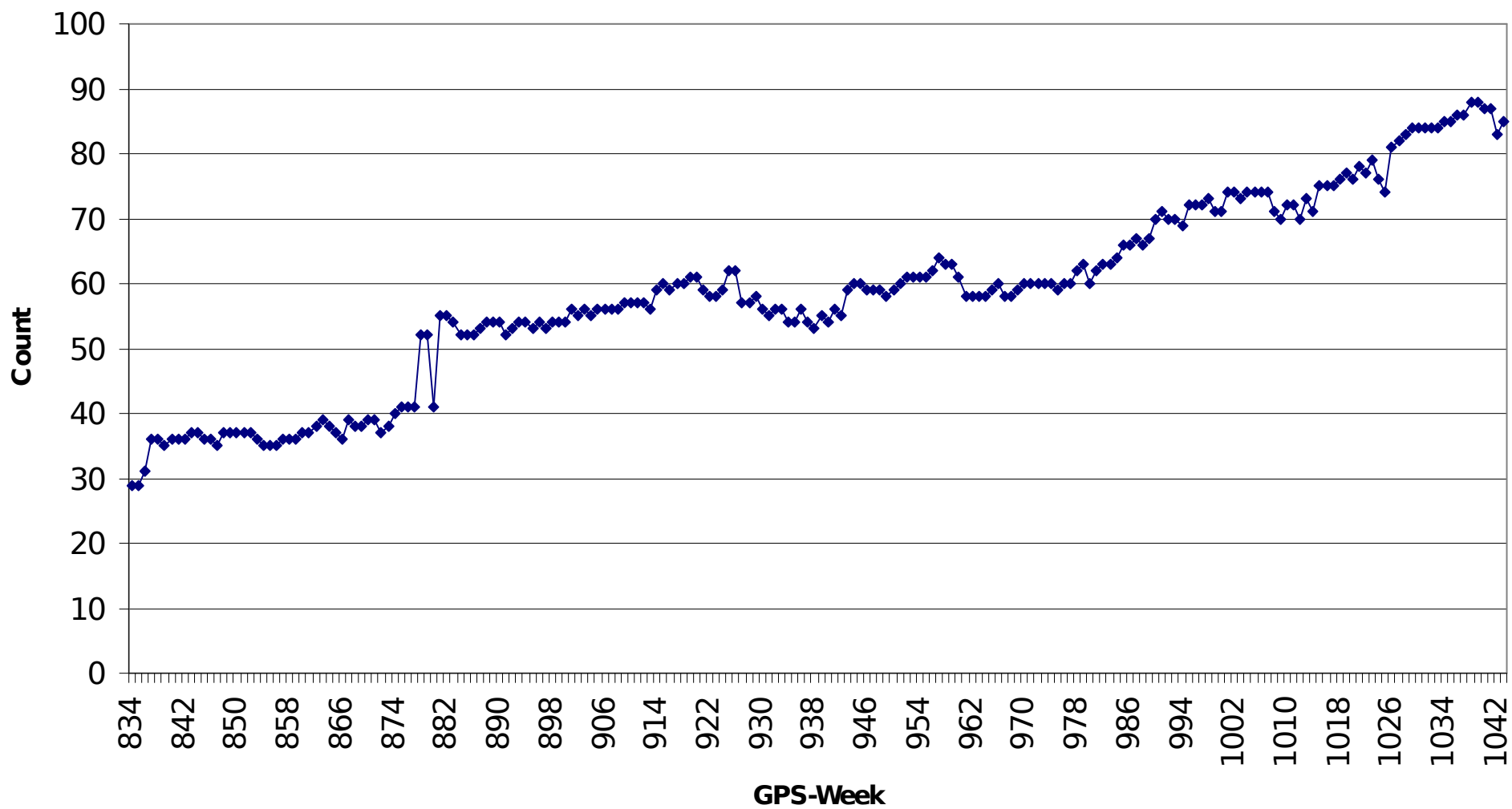
Provided by
Region

Technique &

ASI, Italy
BKG, Germany
CODE, Switzerland
EUVN
IBGE, Brazil
JPL, USA
SCIGN

VLBI, Europe
GPS, Europe, EUREF
GPS, Europe,
GPS, Brazil
GPS, California,

Number of Sites in the EUREF Network

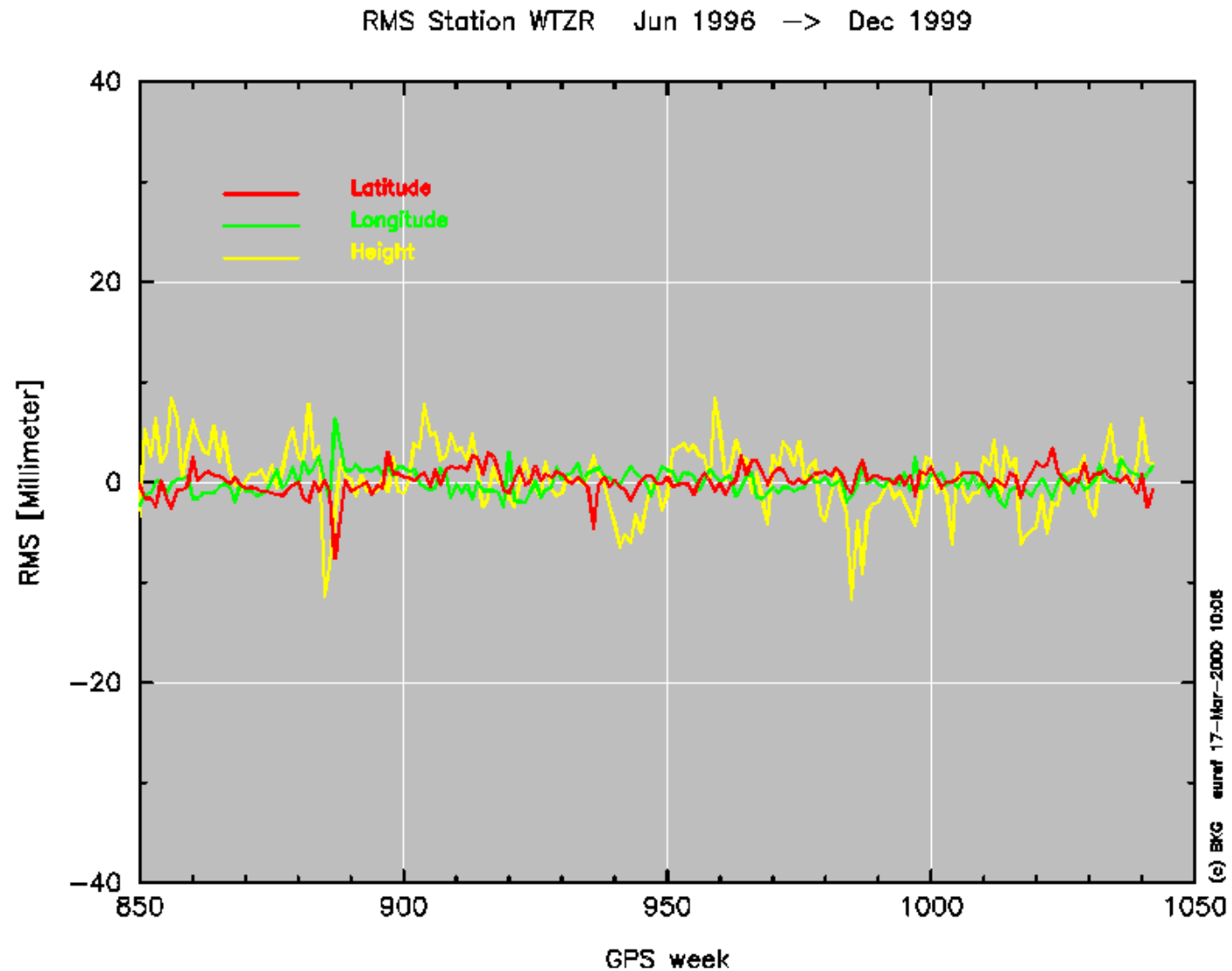


[illegible]

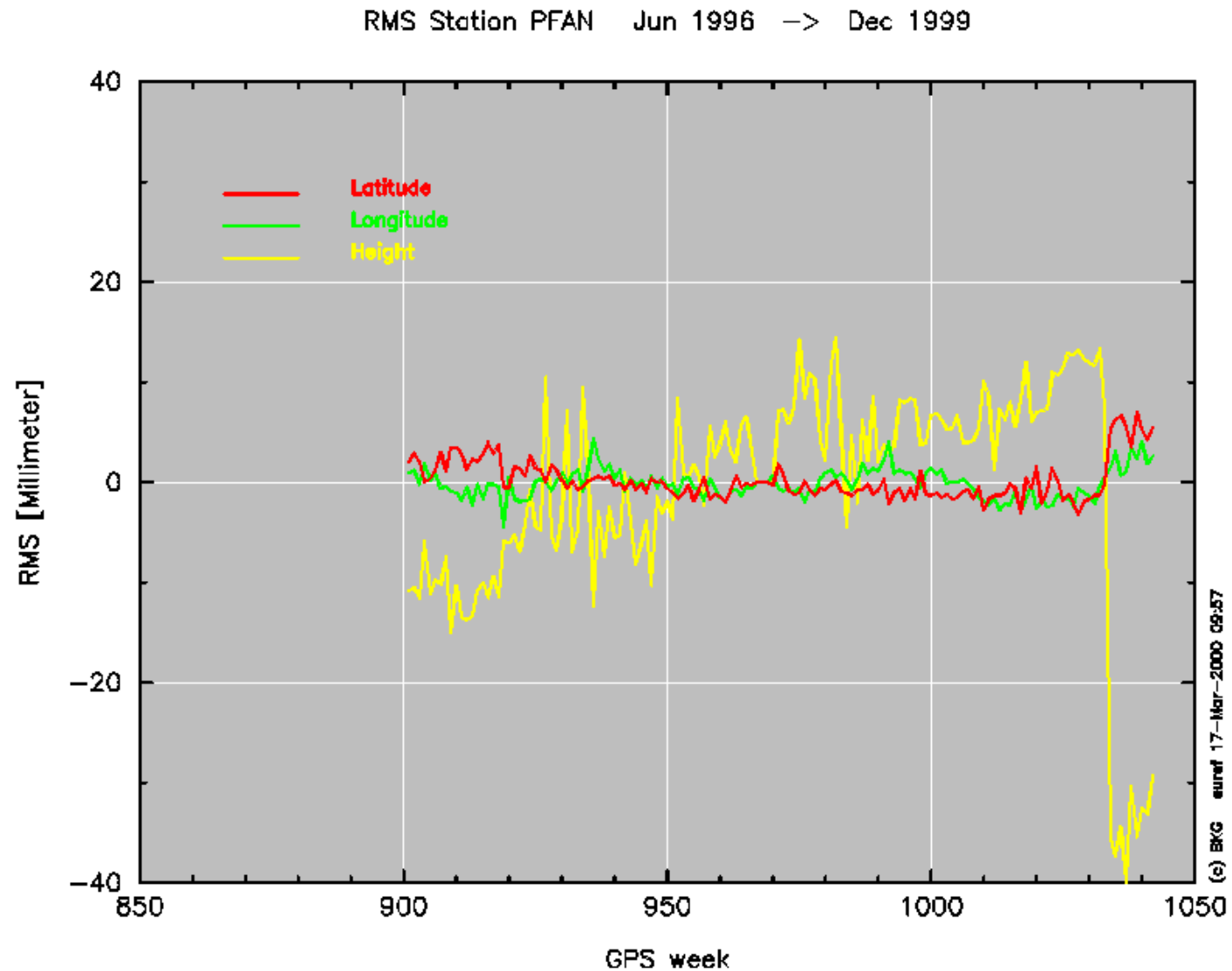
Combination Procedure

- Combination of 183 EUREF weekly SINEX Files
- Using ADDNEQ, Bernese GPS Software
- Use of EUREF „STACRUX“ File
- Splitting time series by use of two or more sets of coordinates with one velocity estimation (e.g. due to antenna change)
- Deletion of outliers

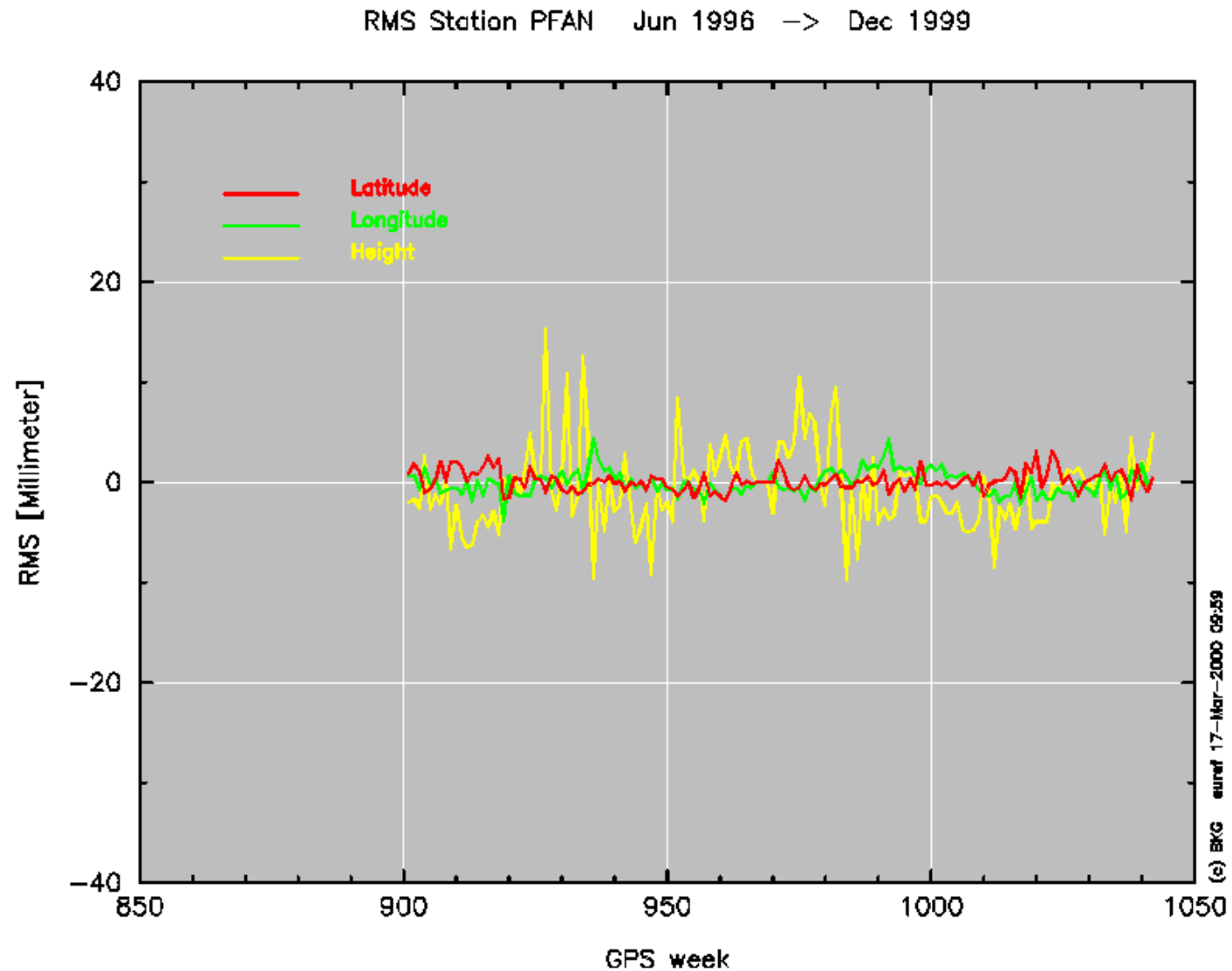
Time Series of RMS, Fundamental Station Wettzell



Time Series of RMS, Station Pfänder



Time Series of RMS after Splitting, Station Pfänder

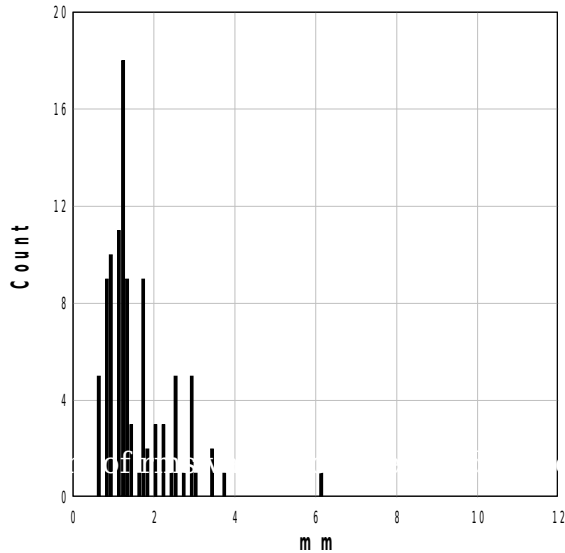


Observation Period Jun 1996.
....Dec 1999

Number of Stations	95
Number of Input Normal Equation Files	183
Number of Observations	9583735
Number of Parameters	5835305
Number of Unknowns	600
A posteriori RMS	0.0036 m
RMS after computation of CRD/VEL (free)	0.0036 m
RMS after computation of CRD/VEL (fixed)	0.0037 m

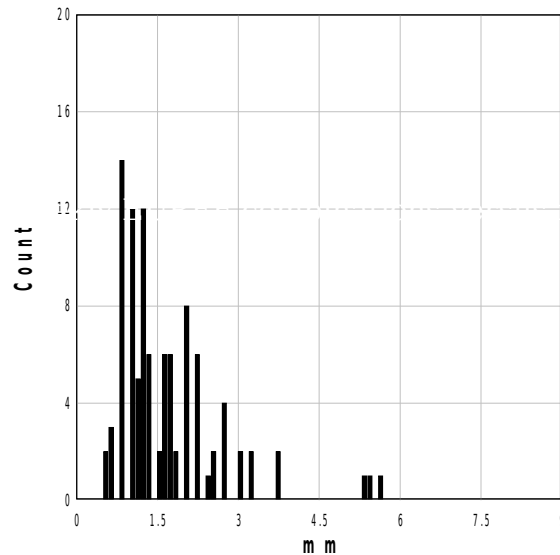
North 1.6 mm

EUREF:96.5-00.0: North Mean RMS = 1.60



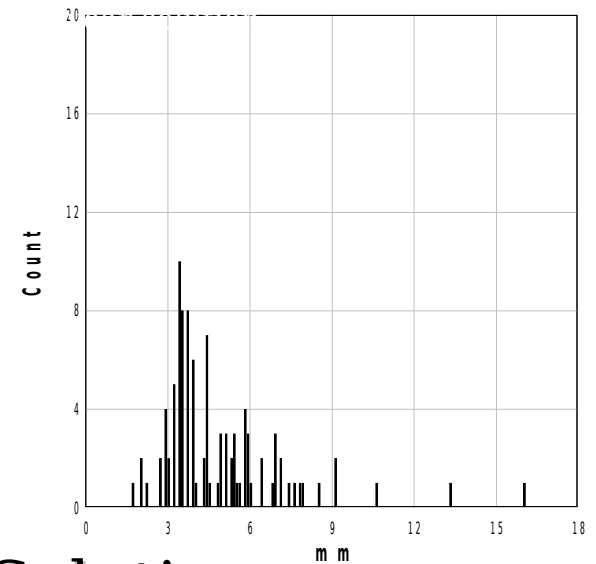
East 1.7 mm

EUREF:96.5-00.0: East Mean RMS = 1.68



Up 4.9 mm

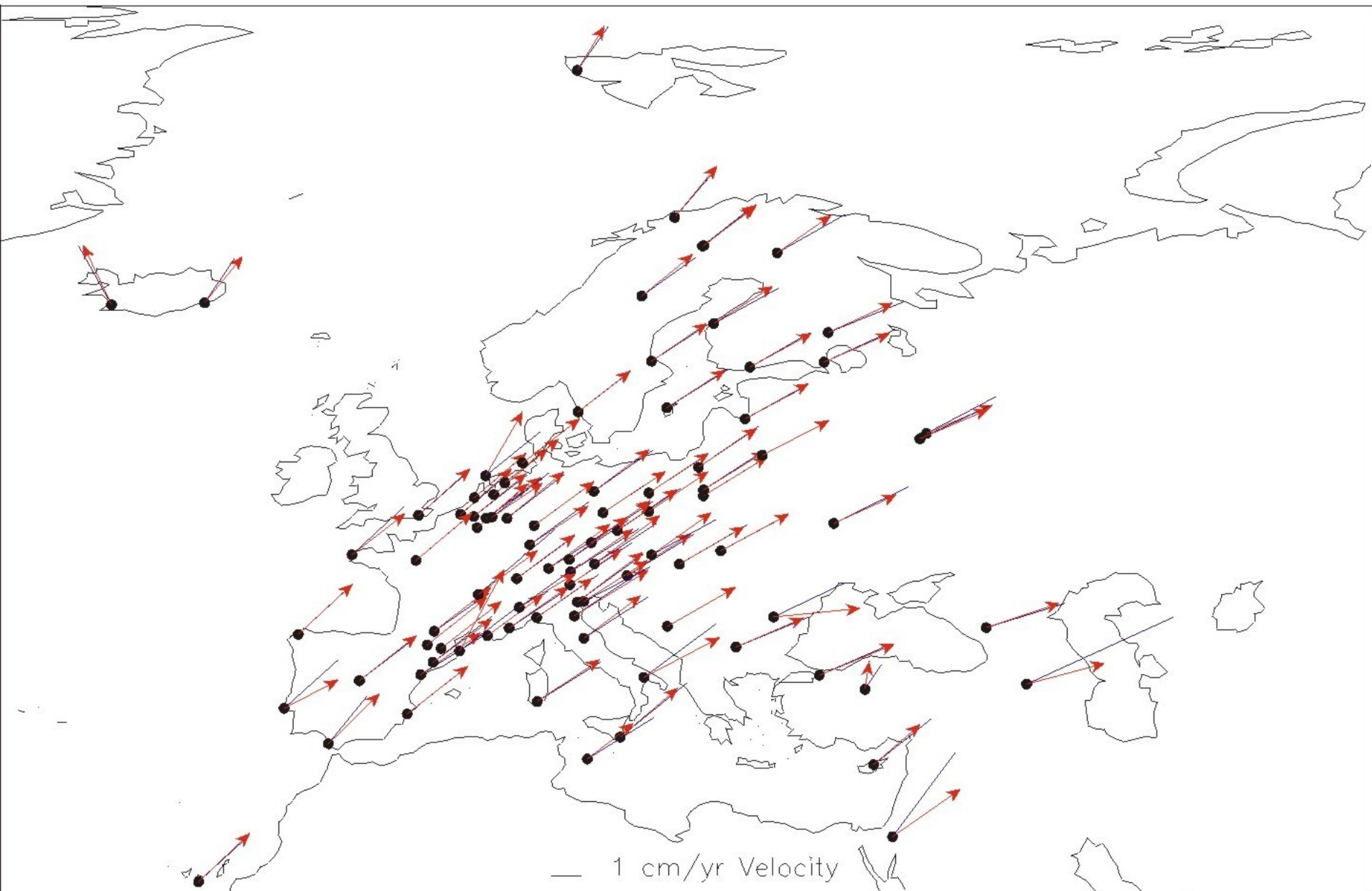
EUREF: 96.5-00.0: Up Mean RMS = 4.86



RMS Residuals

Multi Year Solution vers. weekly Solution

EUREF Velocities (Weeks 0860–1042) Compared to ITRF'97 Velocities



EUREF Velocities (Weeks 0860–1042) Relative to NUVEL-1

